

Remarks

Claims 4, 5, 7-20, 34, and 35 have been canceled herein. Claim 34 has been replaced by new Claim 36. Claim 3 has been amended herein. New dependent claims 37-54 have been added herein. Claims 21-33 have been withdrawn from consideration by the examiner. Claims 3 and 36-54 remain pending in the application.

The Examiner has objected to the drawings under Rule 83(a) as allegedly not showing certain features of claims 8 and 16. These claims have been canceled herein, making the Examiner's objection moot.

The Examiner has objected to the specification under Rule 112, first paragraph as allegedly failing to provide an adequate written description with respect to certain features of claims 8, 16, 34, and 35. These claims have been canceled herein, making the Examiner's objection moot.

The examiner has objected to the claims under Rule 112, second paragraph as allegedly failing to distinctly claim certain features of claims 2-5, 7-20, 34 and 35. With the exception of claim 4, these claims have been canceled herein, making the Examiner's objection moot. With respect to the Examiner's confusion with respect to the terminology "upstream" and "downstream," these terms are used in the outstanding application in their tradition sense of "toward the source of flow" and "away from the source of flow" respectively. Reconsideration is respectfully requested.

The examiner has rejected claim 35 under 35 U.S.C. § 102(b) as allegedly being anticipated by the Housz '146 Patent. Claim 35 has been canceled herein, making the Examiner's rejection moot.

Newly added claim 36 recites that the mixing zone of the rotatable extruder screw includes an inlet channel, an intermediate channel, and an outlet channel. A pair of cross-axial pumps are disposed between the channels. Axial walls bound the outlet and inlet channels for containing the material flow.

In contrast neither the Housz '146 patent, the Araki '790 Patent, or any other prior art of record, alone or in combination, fails to teach or fairly suggest the invention defined by claim 36.

Araki '790 simply has two sets of continuously flowing, helically arranged passageways x

and y (Araki Fig. 1).

It is important to further carefully consider the portion of Araki '790 at column 2, line 61 through column 3, line 14, that the Araki device is using a change of shear section in one and the same helical passageway only for the purpose of warming rubber without causing stagnation of the rubber, and does not achieve cross directed elongation and compression but simply changes the flow rate of the rubber along its constant path.

In Araki, the grooves 5 are bounded on both sides, and the Araki channels and pumps are positioned between spires, as disclosed at Araki column 2, lines 11-20, confirming that the spires of the helix extend helically therearound, and do not have any channels such as defined in applicant's claim 36.

Turning now to Housz, his inlet is bounded by dams 16; the first ridge 13 prevents passage of molten material therethrough.

In Housz, the inlet is a screw 4 and the exit is a screw pump that is not in contact with the screw 4 because of the intervention of the heater section 11. With first ridges 13 and second ridges 14, these intervening members are not intended or constructed to create alternate stretching and compression of the thermoplastic material but only to melt it. There would be no way for Housz' apparatus to create the reorientation of the material in planar shear while pumping into Applicant's second channel inlet 23, which pumps into the cross-axial pump 24, reorienting the mixed plastic material in planar shear.


As such, independent claim 36 is allowable over the prior art of record. In addition, claims 4 and 37-54 recite additional features that are also not found in the prior art of record.

In view of the foregoing, applicant respectfully requests allowance of the pending claims. If the Examiner believes that direct contact with Applicant's represent would advance the prosecution of this application, the Examiner is requested to contact the undersigned at the number listed below.

Respectfully submitted,

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